

WHAT IS CLAIMED IS:

1. A CVD apparatus comprising:
a chamber in which an object to be processed is mounted;
a gas outlet discharging into said chamber deposition gas to deposit
a CVD film on said object to be processed;
5 a gas mixer connected to said gas outlet, and having a plurality of
types of gases introduced and mixed to generate said deposition gas;
a plurality of gas vaporizers, configured based on a usage of a
plurality of gas vaporizers to evaporate liquid source gas and generate any
of said plurality of types of gases;
10 a plurality of source gas origins, configured based on a usage of a
plurality of liquid source gas origins in which is stored said liquid source gas
to be supplied to said gas vaporizer;
a plurality of gas pipes connected to said gas mixer and respective
plurality of gas vaporizers, configured based on a usage of a plurality of gas
15 pipes to guide any of said plurality of types of gases from said gas vaporizer
to said gas mixer; and
a plurality of source gas pipes connecting respective said plurality of
liquid source gas origins and respective said plurality of gas vaporizers;
said gas pipe and said source gas pipe corresponding to said gas pipe
20 constituting pipes of one line, and lengths of a plurality of pipe lines are
substantially identical to each other in comparison of said plurality of pipe
lines with each other.

2. The CVD apparatus according to claim 1, wherein
only a gas flow rate regulating valve is substantially provided at
each of said plurality of gas pipes, and
said gas vaporizer is provided at a neighborhood of said gas mixer.

3. The CVD apparatus according to claim 1, wherein
each of said plurality of gas vaporizers is connected to a flow
acceleration gas pipe through which is guided flow acceleration gas

accelerating flow of said plurality of types of gases in said gas pipe, and
5 said plurality of types of gases are introduced into said mixer in a
state where said flow acceleration gas is mixed.

4. A CVD apparatus comprising:
a chamber in which an object to be processed is mounted;
a gas outlet to discharge into said chamber deposition gas to deposit
a CVD film on said object to be processed;
5 a gas mixer connected to said gas outlet, and having a plurality of
types of gases introduced and mixed to generate said deposition gas;
a deposition gas channel guiding said deposition gas from said gas
mixer to said gas outlet; and
an unreaction suppression gas pipe connected to said deposition gas
10 channel to guide unreaction suppression gas into said deposition gas
channel, said unreaction suppression gas suppressing said deposition gas
from being discharged out from said gas outlet in an unreacted state.

5. The CVD apparatus according to claim 4, wherein a gas flow rate
control valve adjusting a flow rate of said unreaction suppression gas is
provided at a neighborhood of a connection between said deposition gas
channel and said unreaction suppression gas pipe.

6. A CVD apparatus comprising:
a chamber in which an object to be processed is mounted;
a gas outlet discharging into said chamber deposition gas to deposit
a CVD film on said object to be processed;
5 a gas mixer connected to said gas outlet, and having a plurality of
types of gases introduced and mixed to generate said deposition gas;
a gas vaporizer evaporating liquid source gas to generate any of said
plurality of types of gases;
a gas pipe connected to said gas mixer and said gas vaporizer to
10 guide any of said plurality of types of gases; and
a gas flow rate control mechanism provided at said gas pipe to

control a flow rate of any of said plurality of types of gases such that said deposition gas is gradually introduced into said chamber.

7. The CVD apparatus according to claim 6, wherein
said gas vaporizer is connected to a flow acceleration gas pipe
through which is guided flow acceleration gas accelerating flow of said
plurality of types of gases in said gas pipe, and
5 said plurality of types of gases are introduced into said mixer in a
state where said flow acceleration gas is mixed.

8. The CVD apparatus according to claim 6, wherein said gas flow
rate control mechanism comprises
a first gas flow rate regulating valve provided at said gas pipe to
adjust a flow rate of gas in said gas pipe,
5 a discharge gas pipe connected to said gas pipe to guide gas in said
gas pipe out from said chamber, and
a second gas flow rate regulating valve provided at said discharge
gas pipe to adjust a flow rate of gas in said discharge gas pipe.

9. The CVD apparatus according to claim 8, wherein said gas flow
rate control mechanism comprises
first flow rate control means for controlling a flow rate of gas passing
through said first gas flow rate regulating valve by controlling a degree of
5 opening up said first gas flow rate regulating valve, and
second flow rate control means for controlling a flow rate of gas
passing through said second gas flow rate regulating valve by controlling a
degree of opening up said second gas flow rate regulating valve.

10. The CVD apparatus according to claim 9, wherein said gas flow
rate control mechanism operates said first flow rate control means to
increase flow of gas passing through said first flow rate regulating valve
while said second flow rate control means is operated to reduce flow of gas
5 passing through said second flow rate regulating valve.

11. A CVD apparatus comprising:
a chamber in which an object to be processed is mounted;
a gas outlet to discharge into said chamber deposition gas to deposit
a CVD film on said object to be processed;
5 a gas mixer connected to said gas outlet, and having a plurality of
types of gases introduced and mixed to generate said deposition gas;
a gas vaporizer to evaporate liquid source gas to generate any of said
plurality of types of gases;
a liquid source gas origin supplying said liquid source gas to said gas
10 vaporizer;
a connection pipe connecting said gas vaporizer with said liquid
source gas origin; and
a gas flow rate control mechanism provided at said connection pipe
to control a flow rate of said liquid source gas,
15 said liquid source gas, said liquid source gas origin, said connection
pipe, and said gas vaporizer are respectively provided in plurality,
corresponding to respective said plurality of types of gases,
said gas flow rate control mechanism controlling a timing of output
of said liquid source gas from respective said plurality of liquid source gas
20 origins such that the timing of each of said plurality of types of gases being
introduced into said gas mixer is substantially identical.

12. The CVD apparatus according to claim 11, wherein
said gas flow rate control mechanism comprises a sequence
controller controlling a timing of introducing said deposition gas into said
chamber,
5 a liquid source gas valve opening and closing in response to an
instruction signal from said sequence controller is provided at each of said
plurality of connection tubes,
said sequence controller comprises
clock means for calculating a plurality of arriving times required for
10 each of said plurality of types of liquid source gases to arrive at said chamber
from each of said plurality of types of liquid source gas origins,

calculation means for obtaining a difference in an arriving time of said plurality of types of liquid source gases based on said plurality of arriving times calculated by said clock means, and

15 instruction means for sequentially providing said instruction signal to each of said plurality of liquid source gas valves in accordance with the difference in the arriving time calculated by said calculation means,

each of a plurality of said liquid source gas valves receiving said instruction signal to open so as to conduct a flow of said liquid source gas at
20 a timing specified by said instruction signal.